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Evaluating for Transformational Responses: Climate Change, Ecosystem Degradation, and Social Inequality

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Background: Historically, methods for evaluating development interventions are not equipped to isolate transformational changes from other positive (but non-transformational) changes and assess their transformational potential.

Purpose: To provide evaluators, and those who commission, manage, and use evaluation, with a clear framework and practical tools to assess how effectively climate interventions contribute to transformational change, and to support using this evaluative evidence to advocate for socially just and ecosystem-restorative responses to climate and environmental challenges.

Setting: Global.

Intervention: Illustrative case material drawn from evaluations and methodological innovations by the IFAD Independent Office of Evaluation (smallholder adaptation), the GEF Independent Evaluation Office (mitigation and ecosystem-based approaches), and the Footprint Evaluation Initiative.

Research Design: Not applicable.

Data Collection and Analysis: Not applicable.

Findings: This article recognizes the transformational imperative of development interventions to deal with the looming climate and environmental crisis. A fundamental reset of related evaluation practices is needed. That begins with clarifying what does and does not constitute transformational change. Given that there is no single blueprint for all transformational changes covering all sectors and contexts, the article provides illustrative case studies to operationalize the required transformational development. We offer examples of recent evaluations that conceptualized the assessment in terms of nexus effects—the interacting priorities of human wellbeing, ecosystem restoration, and social equity. The nexus framework provides a valuable conceptual tool for identifying and assessing the transformational potential of climate interventions across diverse contexts. These case studies demonstrate a simple, practical method—the rubric approach—to assess these nexus effects, helping evaluators determine whether interventions are sufficiently well designed, at scale, and fast enough to achieve the transformational change, or embody important characteristics that contribute to such change.

Keywords: *climate change; adaptation; environment; transformational change; nexus effects; rubrics; transformative imperative; polycrisis.*

There is increasing recognition that the urgent need to address the interconnected crises of climate change, biodiversity loss, and social inequality requires transformational responses. That means we need not just any improvements, but only those that could contribute to transformational changes that concurrently promote development, restore ecosystems and environment, and advance social justice. At the same time, evaluations of climate and environmental interventions remain largely geared to assess intended project-level outcomes without systematic efforts to assess their ability to lead to transformational change. This article asks a fundamental question: Are evaluation approaches ready and able to identify and assess the potential of interventions to contribute to transformational changes that are urgently needed to repair the damaged environment and promote social justice?

The article presents and illustrates an approach to address this question, drawing from real-life examples from recent evaluations conducted by the IFAD Independent Office of Evaluation (IOE; focusing on smallholder farmers' adaptation to climate change), the GEF Independent Evaluation Office (covering both mitigation and ecosystem-based approaches), and methodologies from the Footprint Evaluation Initiative (covering ecosystem-based approaches).

We argue that transformational change is needed to address the polycrisis with the required level of urgency. This article recognizes the limits and possibilities of evaluation—transforming people's lives is achieved through development interventions, not evaluations. However, evaluations need a fundamental reset to credibly identify what is (and is not) truly transformational and to facilitate informed decision-making that drives transformational climate and environmental responses. However, evaluations need a fundamental reset to credibly identify what is (and is not) truly transformational and to facilitate informed decision-making that drives transformational climate and environmental responses.

Many change efforts produce positive results without being transformational. Evaluation has been slow to make this distinction, tending to affirm any positive progress rather than helping stakeholders think, design, and act in ways that achieve the transformational change needed, at the speed required. Even change efforts that *are* better designed to be transformational tend to be evaluated without recognition of their transformational potential. Therefore, we encourage evaluation to use a transformational lens when evaluating efforts addressing the polycrisis.

This article is directly relevant to evaluators, commissioners of evaluations, groups advocating transformational climate responses, and relevant decision-makers and users of evaluation. To organize this analysis, we use a mind map to frame the logical pathway and identify five guiding questions.

Scope, Analytical Approach, and Value System

This section presents the scope of the analysis and the values animating this article. It also presents a methodology and approach to prepare evaluations and evaluators to address the transformative imperative related to the polycrisis of social equity, accelerating climate change, and the degradation of ecosystems and the environment.

Scope of Analysis

This analysis aims to provide practical guidance for evaluating transformational action in the context of climate and environmental responses. Because the conditions and contexts of transformation vary widely across geographies, sectors, and ecosystems, no single evaluation blueprint will fit all settings; the approaches presented here should be adapted to local and sectoral contexts.

Climate change is only one aspect of a broader ecological crisis that involves biodiversity loss, ecosystem degradation, and pollution, all of which together weaken the resilience of ecosystems and the human systems that rely on them. It is also important to recognize that durable transformational solutions are underpinned by a deep concern for social equity. Hence, a full conceptualization of transformational responses would require assessing the interacting needs of promoting livelihoods, protecting and restoring ecosystems and biodiversity, and facilitating improved social equity.

Analytical Approach

Clarifying what is (or is not) a transformational intervention is foundational to evaluating interventions. The first quest is to identify *key characteristics of transformational interventions* from existing literature. In most settings, transformational change is not achieved through a single intervention. Rather, multiple change efforts (as well as outside forces) combine to make transformational change happen. These "building block" change efforts are distinguished by design

characteristics that enable contributions to transformation, not just to positive changes within the status quo.

Once transformational interventions are identified, it becomes necessary to determine how well evaluations assess them. This involves reviewing the existing evaluation regime to find conceptual frameworks currently being used to assess the transformational nature and effectiveness of relevant interventions.

The logical next step will be to identify *conceptual frameworks* that will address any gaps. The nexus approach is proposed as a powerful way of evaluating change efforts for their potential and effectiveness in addressing the polycrisis.

Next, there is a need to address any *methodological* gaps and develop innovative methods and approaches to evaluate the transformational potential of interventions using the nexus approach. This article will focus on methods for identifying and assessing the intended and unintended effects on interconnected human systems, ecosystems, and the environment.

Finally, producing credible evaluative evidence is necessary but not enough to ensure that interventions become transformational, in line with this evidence. Again, evaluations can point the way to transformational approaches, but evidence does not automatically produce transformation. Evaluations have the potential to catalyze transformation by creating "lightbulb moments" for decision-makers. This is especially powerful when evaluations take a system-centric rather than an intervention-centric approach, thereby illuminating for decision-makers how the current intervention contributes to the wider systemic change effort, in the context of other interventions as well as other forces in play within the system. Our goal is not only to produce operational and strategic evaluations that contribute to transformational interventions and change efforts, but also to ensure that evaluation systems routinely address the human–ecosystem–climate nexus, because that is where decisions can be made that benefit all of these interconnected domains.

Evaluations of interventions to address the polycrisis are useful only if they provide all the evidence needed to persuade decision-makers and duty bearers to pursue those assessed as transformational. Current views on the roles of evaluators do not adequately highlight the proactive role they need to play in identifying effective evidence needed to support these transformational interventions and adequately inform decision-makers. Therefore, this final step of the analytical framework calls for evaluators to understand the bottlenecks and identify the evidence needed to contribute to mainstreaming transformational interventions.

Producing such evaluations and evidence and ensuring that it influences the right decision-makers goes beyond the remit of individual evaluators. This is possible only when there is demand from the commissioners of evaluations and relevant organizations (development agencies, climate funding mechanisms, etc.) for such evaluations and a commitment to learn from them.

Based on this mind map, the analysis and findings of this article will be guided by the following key questions:

1. What are the core characteristics of transformational change efforts, and how do they differ from interventions that do not contribute to transformation?
2. How well do evaluations currently assess change efforts for their contributions to needed transformational change?
3. What alternate conceptual frameworks, moving beyond anthropocentric approaches, can better capture the interconnected needs of human systems, ecosystem restoration, and climate?
4. What evaluation methods and approaches can be adapted to operationalize the above conceptual frameworks and assess the transformational potential of interventions capturing their interactive effects on human systems, ecosystems, and climate?
5. How can evaluative evidence on equitable transformational approaches be used to inform, support, and catalyze a shift in policy and approaches to addressing the polycrisis?

Values Underpinning the Approach

This article is premised on the recognition that a healthy environment and ecosystems are crucial for the planet and the survival of its inhabitants and, therefore, hold inherent value. As such, it also recognizes the significant limitations of the existing anthropocentric development paradigm, which places human concerns at the center and frames the environment as "natural resources" to be used for human needs and aspirations—economic growth, livelihoods, sustenance, construction, and so forth.

This article supports a people- and ecosystem-centered approach that also recognizes the biases inherent in the Western scientific paradigm (such as devaluing local and Indigenous knowledge) and the dominant economic paradigm (which devalues biodiversity and ecosystem health and treats environmental costs as externalities). We examine

how and where marginalization or exclusion occurs, and explore representation and power dynamics among groups, institutions, and capacities, while recognizing the rights of nature.

Evaluating Climate and Environmental Responses for Contribution to Transformation: Conceptual and Methodological Framework

Significant progress has been made in recent years to raise awareness of the importance of including climate and environmental considerations in evaluations. For example, the United Nations Evaluation Group (UNEG) adopted a new norm and standard in 2025 for incorporating environmental impact into evaluations conducted or commissioned by its more than 50 member agencies. The Adaptation Fund introduced an evaluation criterion for "human and ecological sustainability and security" in its first evaluation policy (2023).

This section provides conceptual and methodological elaboration to respond to the five driving questions presented above, beginning with identifying what constitutes transformational change.

Core Characteristics of Transformational Climate Interventions

To clarify what constitutes transformational change, this article synthesizes conceptual frameworks used by major climate funds (CIF, GCF, GEF) and development organizations (IFAD, UNDP), alongside transformation theory (Chaplowe, 2025; Patton, 2020a; Rist & Stame, 2006).

Based on this document review, *transformational change* is best understood as a deep, durable, and systemic reconfiguration of socioecological and economic systems that involves a *paradigm shift in norms and practices*; alters rules and incentive structures to influence behaviors; scales through policy, markets, and sectors; and simultaneously reduces climate risk, restores/maintains ecosystem integrity, and strengthens livelihoods—producing enduring benefits that are robust to future uncertainty. These core characteristics are elaborated below.

- **Paradigm shift.** Transformational changes involve major, irreversible shifts away from business-as-usual regimes to new logics (e.g., from input-intensive monocultures to diversified, regenerative/agroecological systems; GCF investment criteria on paradigm shift; IFAD IOE, 2022; ITAD, 2019). Such changes also signal deep behavioral and cognitive shifts—changes in mental models, risk perceptions, and social norms (e.g., farmers' and officials' beliefs about water, soils, and climate risk), not just technologies (GEF IEO, 2018a; GEF/STAP, 2021; Patton, 2020a).
- **Systemic influence.** Transformational changes entail *rewiring rules of the game*—related to policies, prices, property/tenure, standards, subsidies, extension curricula, data governance, and procurement that propagate change across sectors/scales (GEF/STAP, 2021; GCF, 2021; Thomas, 2024).
- **Scaling and diffusion.** Transformational changes involve replication *and* institutionalization through policy uptake and enforcement, finance flows, market adoption, and supply-chain realignment, as well as scale-*up*, scale-*out*, and scale-*deep* (values/culture; UNDP, 2016; GEF/STAP, 2021; ITAD, 2019).
- **Durability and adaptability.** Transformational changes yield benefits that persist and evolve and are grounded in learning, feedback, and adaptive governance (GEF/STAP, 2021; Patton, 2020b; ITAD, 2019).
- **Equity and inclusion.** Transformational changes focus on reducing structural vulnerabilities by addressing root causes (land tenure, interventions empowering the marginalized, such as women, youth, the Indigenous, etc.) and redistributing capabilities to act (Patton, 2020a; UNDP, 2016; IFAD IOE, 2022).
- **Win-win solutions across a range of dimensions.** Rather than accepting trade-offs among competing priorities, transformational changes are designed to deliver concurrent improvements across economic, ecosystem, and climate dimensions simultaneously—so that, for example, restoring ecosystem health also strengthens livelihoods and reduces climate risk. These mutually reinforcing outcomes are referred to throughout as "win-win solutions" (GEF IEO, 2018b; IFAD IOE, 2022).

Transformational interventions are those that bring about transformational change, i.e., change characterized by many or most of the features listed above. It is recognized that there is no on/off switch

for transformation, nor can a single intervention transform an entire system. Many building blocks are needed, and all have to cohere to have a chance at transformation. A key characteristic of a transformational intervention (a building block) is its potential to contribute to transformation by influencing one or more of the changes listed above. For example, one initiative might contribute to a paradigm shift in one part of the system; another to scale and promote broad buy-in to the new way of thinking; and yet another to rewire the rules and incentives to ensure that the change is durable and difficult to reverse.

In the context of the polycrisis, transformational change can only be meaningfully achieved by addressing both human and natural systems, because the two are so inextricably linked/coupled. In development, for example, this includes restoring ecosystems, enhancing resilience to climate change, providing sustainable economic benefits, and tackling the root/systemic causes of social inequities affecting women, Indigenous communities, and other marginalized groups.

Many interventions with modest positive outcomes tend to focus entirely on tried-and-true strategies, continuing to build on modest past successes without considering paradigmatic shifts, the scale of the problems, the current urgency, or the durable systemic and structural changes needed. Projectized approaches and evaluation methods—the current state of play—often fail to capture and assess interventions against the necessary scale, scope, and speed of solutions and their implementation, needed for transformation.

Distinguishing Transformational Interventions

Assessing whether an intervention is transformational at the time of evaluation requires distinguishing transformational from non-transformational interventions. Briefly, transformational interventions are explicitly designed to do at least one—and ideally several—of the following: benefit both human and natural systems, shift norms and paradigms, rewire the rules of the game, scale innovation to surpass innovation adoption tipping points, and embed those deep changes so they cannot easily be reversed.

Synthesizing the conceptual frameworks used by key climate funds and development organizations, including CIF (TCLP),[1] GEF IEO (2018a), GCF (2021), UNDP (2016), and IFAD IOE (2022), yields the following more detailed summary of the differences between transformational and non-transformational interventions (Table 1). The synthesis compiles the key elements of transformation identified in each of the frameworks studied, prioritizing elements from different frameworks that are mutually reinforcing (for instance, paradigm shifts would lead to system-wide effects, and system-wide changes could lead to paradigm shifts).

The dimensions listed in the first column represent the core features we identified across major climate and development frameworks to distinguish transformational interventions from (idealized or limiting cases of) non-transformational interventions, capturing differences in depth, scale, speed, and sustainability of change processes.

Table 1. Characteristics of Transformational Interventions and Interventions Reinforcing the Status Quo

Dimension	Interventions reinforcing the status quo	Transformational interventions
Paradigm shifts	Work within the existing paradigm (rules, practices, and goals) and may reinforce current systems and mental models.	Explicitly designed to influence behavioral and cognitive shifts and build new mental models, narratives, norms, and capabilities.
	Technical and managerial tweaks; limited behavioral/cognitive shifts.	Reorient goals and rules; redesign incentives and institutions; shift development pathways (paradigm shift).
	The primary focus is on intended consequences, with a view to improving efficiency and effectiveness within a predefined results framework.	

[1] https://www.cif.org/tclp

Dimension	Interventions reinforcing the status quo	Transformational interventions
System effects	Limited spillovers; risks of rebound/maladaptation.	Positive feedback, spillovers, and network effects that reinforce new equilibria.
Scale	Localized pilots; bounded projects.	Multilevel (farm–landscape–market–policy); diffusion via markets and policy.
Durability and adaptability:	*Time horizon* Short-/medium-term; quick wins	Medium- to long-term with adaptive learning and course correction.
Risk/uncertainty	Optimized for current climate variability.	Robust under deep uncertainty; diversifies risks; reduces lock-in.
Vulnerability coverage	Addresses one dimension (e.g., yield)	Simultaneously addresses ecosystem, climate, and economic vulnerabilities ("triple-nexus").
Reversibility	Relatively easily rolled back; previous systems, structures, and mindsets are still intact	Relatively irreversible; new systems, structures, and mindsets have displaced the previous ones
Triple-nexus performance	A weak focus on win-win solutions, with a primary emphasis on trade-offs among the three resilience areas (economic, climate, and ecosystem).	Clear prioritization of win-win solutions when feasible; restoring ecosystem health, economic and human wellbeing; and a focus on offsets, when these options are not available.
Example (smallholder adaptation)	*Drought-tolerant seed along with drip irrigation within a monoculture and a subsidized fertilizer regime.*	*Diversified agroecological systems, with water-governance reform, price/insurance rules + extension retooling, carbon-/nature-aligned market incentives.*
Equity and inclusion	Interventions focus on proximate causes rather than root causes; sensitive to gender and youth considerations without making those factors central to the interventions.	Interventions focus on root causes, replacing systems and structures that perpetuate inequities, and uplifting and involving the marginalized in driving change, not just being subjected to it.

Note. Adapted from GEF/STAP (2021); GCF (2021); UNDP (2016); IFAD IOE (2022); and ITAD (2019).

The value of an intervention's contribution to transformational change is assessed not only by how extensively it embodies one or more of these characteristics (and delivers on the corresponding outcomes), but by how well it builds on and complements other "building block" interventions to provide the right kind of pressure on the system that will eventually give rise to transformation. Therefore, when it comes to evaluating transformational interventions, it is important to look beyond the scope and boundaries of the intervention and to see its position within the system and in the context of other building block changes that have already occurred or are in process. This includes not only aligned and complementary interventions, but also outside forces such as political and social changes (e.g., legislative backsliding, disinformation, or major demographic changes), as well as other significant environmental events and changes (e.g., oil spills, volcanic eruptions, or droughts).

Fundamentally, this requires a shift from intervention-centric evaluation to system-centric evaluation. It starts with an analysis of the current system and the needed transformational end-state, as well as the transformational building blocks (and counterforces) that have already affected it or are likely to do so. From that vantage point, the

intervention is assessed for how well it contributes the next most essential building blocks for transformational change (from the list of characteristics in Table 1) and how successfully it brings them to life as progress toward transformational change.

When we shift evaluation's focus to the system—or, more accurately, to coupled human–natural systems (Rowe, 2021)—and when we include the other forces working both synergistically and against the required transformational change, we can strike a more constructive balance. Individual projects are no longer single-handedly expected to deliver full system transformation, but they *do* need to show how they fit within and contribute effectively to a broader, genuinely transformational agenda and are not simply building on modest improvements to the status quo. Moreover, decision-makers will gain insights into not just how to improve the current initiative, but what else needs to run alongside it to catalyze, broaden, and embed its impact so that the transformation has a better chance of succeeding.

Methodological Gaps in Evaluating Transformational Interventions

Nexus Considerations for Transformational Climate Interventions

The nexus approach captures the full ramifications of interventions within the context they operate in. This recognizes the globe as a system of interdependent components (i.e., human systems, ecosystems, and climate) that interact and influence one another (Uitto, 2019). The nexus is typically defined as a set of mutually reinforcing links among these components. The changes in one component systematically shape opportunities, risks, and feedback in others over time. For example, human actions, such as promoting livelihoods, may cause lasting changes to the ecosystem, climate, and social justice, which, in turn, will affect livelihood generation.

There may be many such components within the system, but the nexus approach of this article singles out the interactions among the following three key dimensions, selected for where the most significant changes relevant to the climate change crisis occur:

1) **Human system**—includes activities to promote livelihoods, protect the environment, and ensure social justice;
2) **Ecosystem**—community of living organisms and the non-living physical setting they interact with, (such as soil, water, air, climate, etc.), within a particular area (scale);
3) **Climate**—long-term atmospheric weather patterns, such as global warming.

Thus, the nexus approach adopts a systems perspective, considering changes at broader scales, such as the ecosystem level and beyond. A multidisciplinary, cross-sectoral approach is essential to fully grasp the range of nexus effects.

These nexus interactions are not just "unintended or unexpected consequences," because they treat human and ecosystem dynamics as coevolving systems whose interactions are expected, patterned, and often central to the theory of change, rather than as unexpected side effects.

Nexus thinking challenges anthropocentric practices that prioritize productivity at the expense of ecosystem stability and biodiversity, often resulting in harm to the natural environment and, by extension, to productivity. It also contradicts the prevailing approaches that often entail trade-offs between short-term economic gains and long-term sustainability. In short, the nexus approach offers a paradigm shift. It provides a framework for evaluating and contributing to the transformational potential of climate adaptation responses.

As such, a focus on this nexus represents a paradigm shift away from the anthropocentric approach that has dominated development interventions. It also represents a shift from taking tradeoffs as inevitable to identifying win-win solutions that can achieve economic, ecosystem, and climate resilience together.

Nexus Approach and its Limitations

Nexus considerations are not comprehensively and systematically addressed in the existing development and climate interventions or their evaluations. This is demonstrated in a review of evaluations of agricultural interventions conducted during 2010–2022, focusing on their response to the climate crisis, confirming that assessment of the nexus effects between human and natural systems is often overlooked (IFAD IOE, 2022). Five primary reasons for this are discussed below.

First, the evaluands involve ambiguity and complexity. A detailed nexus assessment would require multidisciplinary expertise (soil health, air and water quality, biodiversity, etc.), and many evaluation teams may feel they do not have the budget, competence, or time to invest. However, local and Indigenous interests engaged in the

evaluation process can often help identify the most important nexus issues, and natural science expertise can often be engaged at modest cost. From a utilization perspective, given these complexities and challenges, highlighting the two or three most important nexus concerns and explaining them well is likely to be more influential for decision-makers than a deep and detailed dive into a vast array of issues (Rowe et al., 2025a).

Second, evaluations are frequently conducted within an anthropocentric and environmentally damaging framework that accepts ecosystem damage as inevitable and overlooks consequences to human systems over time. Interventions that address development issues without explicitly referencing the environment or climate mostly base their approach on the intervention's internal logic (Chaplowe & Hejnowicz, 2021). They do not consider the environmental or climate impacts of the development actions, nor how climate change or ecological degradation could influence the success or longevity of the outcomes. These omissions are then transferred to most evaluations, which, rather than critically questioning whether the intervention is appropriate in the first place, focus on whether it is implemented effectively.[2]

Third, even when an intervention has the potential to contribute to transformational change, the methods used in evaluation are often more suitable for measuring positive progress within the status quo than transformational change—for example, evaluations that center around the achievement of predetermined outcomes as outlined in project documents introduce an inherent bias against assessing the full range of unintended consequences within the nexus. As a result, they fail to capture the transformational potential fully and offer only limited insights to guide such change.

Finally, a challenge specific to adaptation is that sustainable adaptation solutions depend heavily on context, including different ecosystems such as coastal zones, arid areas, mountainous terrains, urban settings, and various activities like viticulture and horticulture. This makes the methods difficult to transfer to other contexts, creating challenges in learning from previous evaluations. Still, there are some broad principles that have been gleaned from the work in these various ecosystems—such as the insight that the best interventions involved nature-based solutions that were implemented through participatory approaches at the scale of ecosystems. These principles could guide interventions in different contexts.

As a result, the method for evaluating nexus effects is underdeveloped, resources are scarce, and accountability for nexus effects is weak. Methodologies of typical evaluations focus on incremental changes and are not equipped to evaluate transformational interventions (see Table 1).

Concrete Examples of Evaluating for Transformational Interventions

Evaluating the human–ecosystem–climate nexus requires that evaluations of environmental and climate change interventions take a broader perspective on analyzing how the intervention impacts different parts of the natural environment and the socioeconomic landscape. In the case of natural environment, it is important to account for the interlinkages between the various parts of the ecosystem, such as climate and weather, vegetation cover, water balance, and biodiversity. For the socioeconomic landscape, it is important to identify the impacts of the intervention to different groups of people, including the vulnerable and marginalized and Indigenous peoples, and who are the winners and possible losers. It is equally essential to recognize how these various human and natural elements interact among themselves.

The Nexus Approach in Practice: The GEF Example

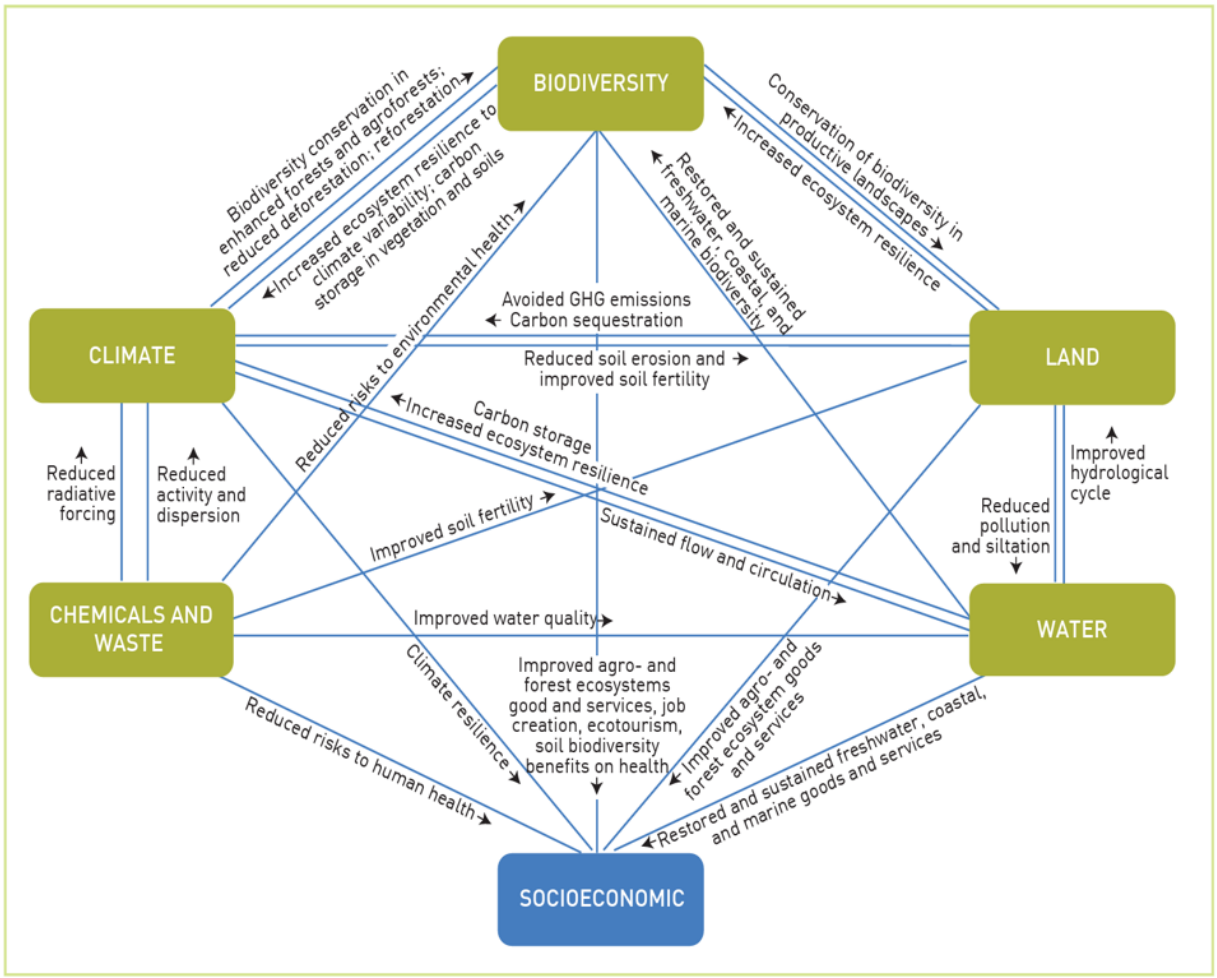
At the GEF, a nexus approach initially focused around its focal areas of biodiversity, climate change mitigation, land degradation, chemicals and waste, and international waters. Accordingly, evaluations focused on measuring outcomes in these domains. This approach evolved first to multifocal area projects and later to integrated programming. "Multiple benefits" referred to the global environmental benefits achieved within a project or program across at least two focal areas, and including any local environmental and social benefits that contribute to achieving and sustaining these global environmental benefits. An evaluation

[2] IFAD projects assess the organization's support to agricultural efforts of smallholder farmers. All project evaluations of IFAD assess the contribution to climate adaptation and environment and natural resource management. The thematic evaluation of IFAD support to smallholder farmers' adaptation to climate change reviewed 30 projects, of which only six were found to be doing no harm. Yet, none of the 24 projects had been recommended to be revamped by the project evaluations conducted earlier.

of the role of local benefits in global environmental programs (GEF EO, 2006) was instrumental in advancing the utility of finding win-win solutions that generate positive economic and environmental outcomes to local communities. This contributed to community buy-in to the protection of the global environment.

Later, the GEF IEO (2018b) explored whether and how the facility's projects were achieving multiple benefits through multifocal area programming. The evaluation systematically mapped possible linkages among these domains for use as an analytical framework for the evaluation (Figure 1). This framework identified the interlinkages within the human–ecosystem–climate nexus that were relevant for GEF programming to address. Importantly, informed by portfolio analysis and literature, it further identified the opportunities for creating synergies between the various domains.

Figure 1. Nexus Approach: Livelihoods–Climate–Biodiversity–Environment



Note. From *Evaluation of the Multiple Benefits of GEF's Support Through Its Multifocal Area Portfolio,* by Global Environment Facility Independent Evaluation Office, 2018, p. 3, (https://www.gefieo.org/en/types/evaluations/transformational-change).

The evaluation analyzed the synergies and potential trade-offs among the goals. Most often, conflicting objectives arose between environmental and socioeconomic goals, frequently involving a trade-off between short-term economic gains (and needs) and long-term environmental sustainability. It then identified the strategies that the projects had used to mitigate these trade-offs. A key finding,

however, was that all of the projects examined in detail showed clear synergies across various dimensions. Pure win-win situations were difficult to identify. A review of biodiversity mainstreaming concluded that most projects involve some trade-offs between desired conservation outcomes and desired social outcomes (GEF, 2016). Minimizing these so that maximum benefits accrue both to people and nature is essential.

Evaluations of interventions that lack environmental or climate objectives must systematically assess their impacts, even if these impacts are often unforeseen during intervention planning or within results frameworks. These impacts can be positive or negative, immediate or long-term; however, neglecting to explore them will make the evaluation findings and conclusions biased and invalid (Rowe, 2022).

Whether or not interventions have explicit environmental or climate objectives, evaluations should assess how effectively interventions promote win-win solutions for people and the planet. When compromises and trade-offs are identified, evaluations need to highlight them so that policymakers and intervention supporters can address them proactively.

A Method for Assessing Human–Ecosystem Nexus Effects: An IFAD Example with Footprint Evaluation Rubrics

Many sectors are affected by the climate crisis. Agriculture is both highly vulnerable to climate variability and extremes and a significant contributor to climate change, accounting for about one-fifth of global greenhouse gas emissions (FAO, 2021) and a large share of human-made nitrous oxide and methane (UNEP & FAO, 2024). Agriculture—both crop and livestock production—is also the leading cause of deforestation (West et al., 2025).

Yet, when the IFAD IOE undertook the thematic evaluation of climate adaptation (IFAD IOE, 2022), no practical method or guidance was available to identify and assess the human system–ecosystem nexus of agricultural adaptation interventions. The IFAD IOE thematic evaluation team (with support from Footprint Evaluation) developed a credible and practical method to evaluate the nexus effects. In particular, this involved a qualitative assessment of whether interventions contributed to continued degradation, used some sustainable practices to reduce harm, were neutral (i.e., caused no net harm), or restored natural systems. This is further elaborated in the case study illustration below.

The evaluation by IFAD IOE (2022) considered 30 climate adaptation projects in 20 countries (14% of the total portfolio). Based on the data collected, the team determined a suitable typology to guide project ratings. Subsequent to the evaluation, the Footprint Evaluation Initiative developed a rubric to clarify the evaluative reasoning used to make the ratings (see Table 2 below).

The typology (categories in the first column of the table) aims to show the stance of an intervention (program, policy, or project) regarding the natural system. A structured scoring system is not practical, because the actions, along with the specific ecosystems and landscapes they connect to, are highly varied, with significant differences in spatial and temporal scales. Therefore, the classification of an intervention into one of the categories is approximate; a no-net-harm assessment indicates that, overall, the intervention is unlikely to damage natural systems, or that any damage was offset by restorative actions.

Critical to the application of the typology, with or without rubrics methodology, is the use of careful validation and cross-checking to ensure strong interrater reliability and robust ratings. In the IFAD evaluation, initial assessments were completed by the lead for the sustainability assessment, based on the case study materials. These initial assessments were then reviewed by the team member leading each case study and, after discussion, ratings were adjusted accordingly. Finally, country and regional staff and managers reviewed the assessments as the draft report took shape. If there was evidence to support a change in the rating, the adjustment was made.

Note that the rubric in Table 2 is broad and deliberately underspecifies the exact evidence needed to make judgments. This is because projects are located in diverse settings with quite different ecosystem challenges—and each one was designed to address different human system needs as well. Those making the assessments will therefore need to determine what evidence is contextually relevant, feasible to gather, and sufficient to provide a robust assessment for each project. Underspecification also reflects a key principle in complex systemic change (Meadows, 2008). Such change typically emerges from innovative actions that don't follow a predetermined pathway and often involve things getting worse before they get better. For this reason, trying to predict outcomes, indicators, and other evidence in advance is counterproductive for the exact kind of innovation that transformational change efforts seek to foster (Patton, 2010; Williams & Hummelbrunner, 2010).

These types of rubric designs require that individuals or teams making the ratings possess

sufficient expertise in natural systems to accurately identify relevant evidence and properly apply evaluative reasoning, using the rubric as a guide. When such expertise may not be available at all sites and more detailed guidance is needed, rubrics can be supplemented with evidence-collection tools and comprehensive instructions for analysis and rating (e.g., Davidson et al., 2025a).

This nexus analysis of the 30 climate adaptation projects covered by IFAD IOE (2022) is summarized in Table 3.

Table 2. A Rubric Constructed to Refine that of IFAD IOE Evaluation (2022)

Restorative	A combination of strong sustainable agricultural practices, sustainable offsets, and restorative actions meant that **the health of natural systems across relevant ecosystems or landscape was improved / restored** overall as a result of the smallholder farming efforts in question. For example, addressing water shortages in semi-arid settings by improving landscape-level water capture and retention, thereby addressing water needs for humans, including agriculture, and for other fauna and flora.
No net harm	Strong sustainable agricultural practices and important, well-designed offsets were used effectively to ensure that the project did **no net harm to natural systems across ecosystems or landscapes**. For example, applying integrated watershed management.
Sustainability-aware +	**Strongly sustainable practices were being used**, usually related to agricultural practices which **reduced harm but still incurred environmentally adverse results**. For example, in pastoral agriculture: appropriate location with respect to landscape and important ecosystems; respectful of local agricultural and cultural practices; limiting the number and type of livestock; maintaining important farm boundaries, keeping animals away from water bodies, buffers to reduce sediment and nutrient flow into water bodies; using climate-smart agriculture but also using harmful elements such as trying to generate additional income by planting heavy water-using fruit or nut trees as hedgerows.
Sustainability-aware	**The project at least considered environmental issues**, such as by including mention of key terms such as environment, climate, sustainability, landscape, ecosystem, integrated, pest and water management, etc. But lacking fidelity in design and implementation. Some sustainable practices may have been evident, but the inherently harmful effects remained. For example, very farm-centric, such as not planting buffers (e.g., Indigenous shrubs or trees) to protect adjacent water bodies.
Ignores natural systems	The project was in proximity to protected areas or water bodies, removed tree cover, etc., but the case study showed **no evidence that natural systems were considered**. For example, industrial-style farming using herbicides and pesticides, deep annual tilling.

Note. Adapted from *The Footprint Evaluation Typology Guide: Making Clear Evaluative Judgments about Environmental Sustainability Using Mixed-Method Evidence*, by E. J. Davidson, T. K. Chianca, & A. Rowe, 2025, German Institute for Development Evaluation (DEval) (https://footprintevaluation.org/resources/typology-guide).

Table 3. Illustration of the Application of the Nexus Typology Assessment

Nexus typology	Region	Project(s)	Description
Sustainability aware	Middle East, North Africa, Europe, and Central Asia	Sustainable Agriculture Investments and Livelihoods (2014–2026)	The project operates in areas characterized by water scarcity and high temperatures. It encourages agricultural and non-agricultural livelihoods in new lands characterized by scarcity of water and foresees usage of water from the river and groundwater. Planned use of drip irrigation can reduce the total draw to the extent actually deployed use of solar pumps will likely increase the draw.
Sustainability aware–	Latin America and the Caribbean	Agricultural Intensification and Vulnerability Reduction (2018–2025)	While there has been a strong focus on resilience elements in the program, this has somewhat come at the expense of key biological elements that support adaptation, such as soils, crops, seeds, water, and reforestation. These elements have not been fully considered and—mainly due to budget constraints—have only been partially addressed in the community competitions and investments. Focus group discussions also revealed that human-induced impacts on ecosystems were not well understood in their cause-and-effect relationships¾for example, an increase in climate-related risks could be linked to poor land management practices.
Sustainability aware+	West Africa	Improving the Resilience of Agricultural Systems (2014–2022)	The design aimed to improve access to and sustainable management of water resources and to facilitate access to input and produce markets within value chains where rural poor people have a comparative advantage. Water capture and agricultural water management have been enhanced, for example, by constructing relevant structures in rainfed cropping areas such as stone bunds, zai pits, and herbal ridges, as well as in vegetable gardens with wells or boreholes, and in periodically flooded areas used for recession crops called “seuils d’épandage.” Some actions are categorized under “respecting ecosystem integrity and restoration,” while others are considered more “respecting integrity” or involve “enhanced NRM,” where actual ecosystem actions like water capture and intensified cropping are not restorative. Certain implementation challenges do not favor the natural system and may open remote production areas to potential harm, especially when operating in globally significant biodiversity hotspots such as the [nearby] National Park. Improved agricultural management and tree planting—particularly through planting five community forests—and environmental education are expected to be beneficial. Overall, the project appears to be moving, albeit slowly, in the right direction regarding environmental concerns.

Nexus typology	Region	Project(s)	Description
No-net-harm (do-no-harm)	East and Southern Africa	2012–2023. Integrated, Participatory Natural Resource Management	The project addresses the nexus between rural poverty and ecosystem health in a densely populated and environmentally fragile water catchment area of critical national and global significance. It emphasizes biodiversity conservation, ecosystem services, and the development of absorptive, adaptive, and transformational capacities. It used participatory natural resource management and biodiversity conservation strategies by mainstreaming ecosystem services in farming and land management practices. Project employed integrated participatory natural resources management to enhance smallholder farmers' CCA while proactively contributing to nature conservation objectives. To mainstream ecosystem services, the project design included mobilizing a wide range of technologies and land management practices to ensure that farming and land management practices contribute to ecosystems resilience. The aim is to address local communities' water needs through water harvesting and storage ("blue" water), crop production requirements ("green" water) through soil and water conservation activities and agroforestry, and to recharge the aquifers. [The project] was effective in enhancing the capacity of CBOs to integrate CCA options and ecosystem services in human dominated areas and conservation landscapes of the River Tana Basin.

Note. Adapted from Thematic Evaluation of IFAD's Support for Smallholder Farmers' Adaptation to Climate Change, by the International Fund for Agricultural Development Independent Office of Evaluation, 2022, (https://ioe.ifad.org/en/w/thematic-evaluation-of-ifad-s-support-for-smallholder-farmers-adaptation-to-climate-change).

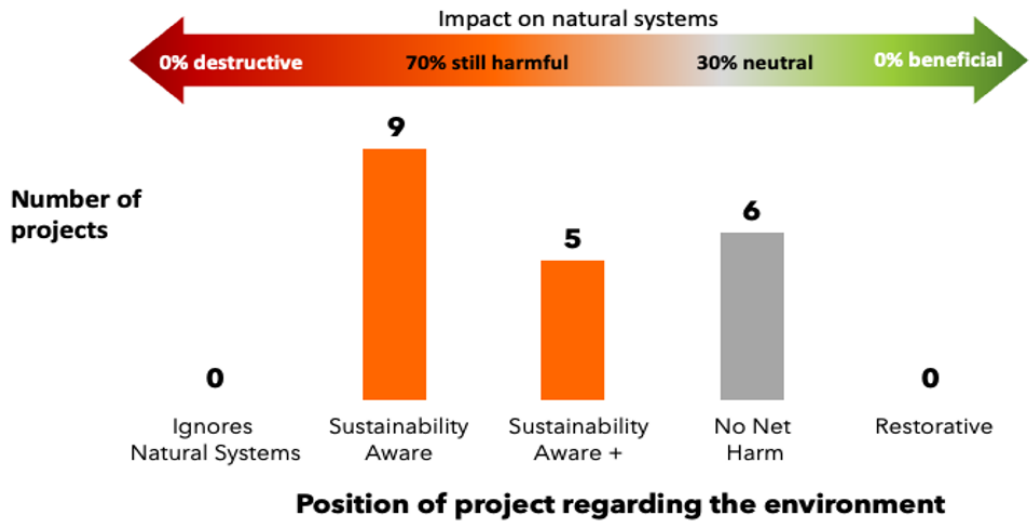
The findings of the nexus analysis in Table 3 are graphically presented in Figure 2, showing results for the 20 country case studies covering the 30 projects included in the study. The application of the typology to generate clear, evidence-backed evaluative judgments continues to evolve through collaborative partnerships with the Global Evaluation Initiative (GEI), Global Affairs Canada, the German Institute for Development Evaluation (DEval), the Colombian Department of National Planning, and Footprint Evaluation. This has resulted in the cocreation, adaptation, and application of related tools and approaches to establish proof of concept and encourage broader adoption (e.g., Rowe et al., 2025a, 2025b). However, much work remains to be done (Rowe & Uitto, 2023).

An Approach for Assessing Social Equity–Natural Systems Nexus: A Schematic of Footprint Evaluation Rubrics

This section demonstrates how the typology developed for the smallholder climate adaptation evaluation (IFAD IOE, 2022) might be enhanced using rubrics methodology (Davidson, 2005) and expanded to also address gender and equity (Davidson et al., 2025b).

As this article promotes considerations of win-win solutions, it's important to find ways to represent human and natural system effects that align with this perspective, rather than relying on problematic trade-off thinking. While exploring how to do this, the Footprint Evaluation Initiative noticed clear similarities between the thinking behind the rubric typology used for the human–environment nexus and how equity is typically described when it is understood as a systemic issue.

Figure 2. Distribution of Nexus Typology Ratings across 20 Countries with IFAD-supported Climate Adaptation Projects



Note. From *Thematic Evaluation of IFAD's Support for Smallholder Farmers' Adaptation to Climate Change*, by the International Fund for Agricultural Development Independent Office of Evaluation, 2022, (https://ioe.ifad.org/en/w/thematic-evaluation-of-ifad-s-support-for-smallholder-farmers-adaptation-to-climate-change).

Just as businesses have historically viewed the environment as "natural resources" to be exploited for profit, this extractive mentality has also been applied to "human resources." The suppressed wages of women and other marginalized groups are well documented by the International Labor Organization [3] and others.

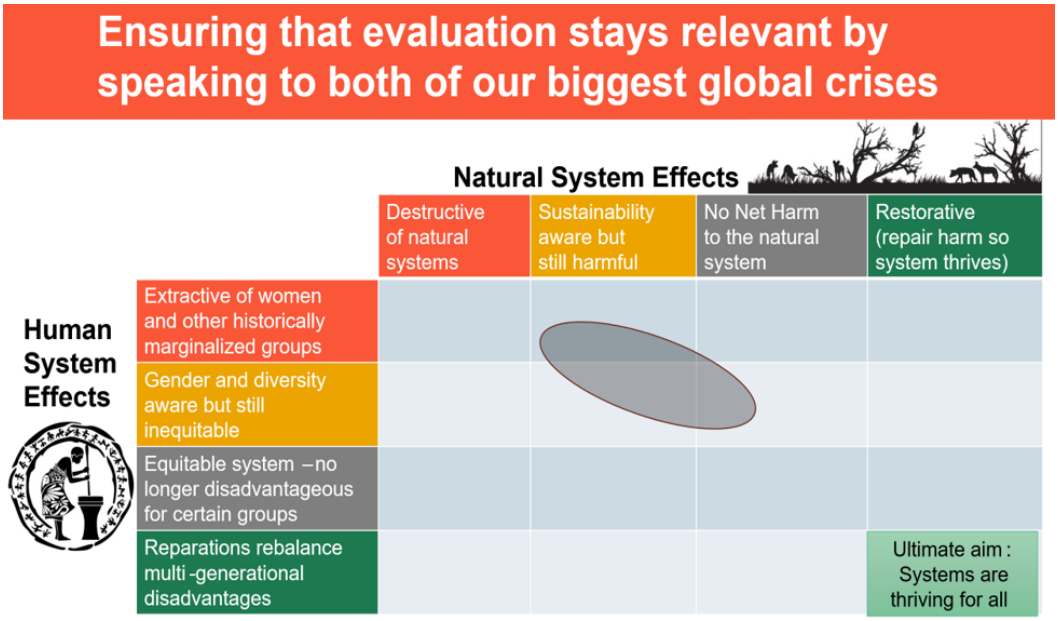
Global awareness of the abysmal working conditions and suppressed wages of women has increased, and there has been a push toward safer working conditions and better compensation. This is similar to the emergence of sustainable practices with respect to natural systems. Harms are reduced compared to previous practices—though not yet sufficiently to eliminate environmental damage or social and economic inequalities.

The human-system equivalent of no net harm to the environment is an equitable system that no longer systematically disadvantages certain groups and where people can earn decent livelihoods. Ultimately, just as we recognize the need for a restorative approach to repair damage already done to natural systems, an entirely equitable response also involves providing additional resources to groups that have experienced compounded disparities across multiple generations.

The above thinking is distilled in the Footprint Evaluation Equity–Sustainability Matrix (Figure 3). Its primary purpose is to catalyze a paradigm shift for decision-makers: that our ultimate aim should be creating the conditions where both human *and* natural systems are thriving and equitable. Evaluation can help create this transformative "lightbulb moment" by assessing change efforts on both dimensions and using the matrix as a tool to communicate that assessment.

[3] Women face a combined disadvantage of lower employment rates and lower pay when employed. Women often earn only 51–52 cents for every dollar of labor income earned by men due to lower wages and lower participation rates (ILO, 2025).

Figure 3. Example Social Equity–Natural Systems Matrix



Note. From *The Footprint Evaluation Typology Guide: Making Clear Evaluative Judgments about Environmental Sustainability Using Mixed-Method Evidence*, by E. J. Davidson, T. K. Chianca, & A. Rowe, 2025, German Institute for Development Evaluation (DEval) (https://footprintevaluation.org/resources/typology-guide).

As shown by the oval, the vast majority of projects we evaluate will typically be in the "aware" zone. Still, there are often pockets of more promising practices (as in the IFAD example) that can be identified and emulated. A matrix like this could be used to plot projects' positions within the cells, identifying the bright spots and showing where further changes are necessary.

Addressing Challenges to Evidence-Based Transformational Climate Response

As noted earlier, evaluations do not directly transform people's lives; development does. In order to support development to more effectively address the urgent polycrisis (which includes the environmental and climate crisis), there is a need to translate the body of relevant evaluative evidence to inform and support transformational change.

This involves more than sharing the evidence for specific win-win solutions. It is about the barriers to strengthening buy-in of these approaches by decision-makers and claimholders. It is about informing efforts to scale these solutions, promote synergies across interventions, and ensure enabling conditions that facilitate transformation—such as promoting behavioral change, a conducive policy framework, and appropriate and adequate financing mechanisms, to name a few.

This section presents a summary of the findings from evaluations and existing literature on bottlenecks to identifying and implementing transformational changes, and thereby determining the evidence needed to effectively address these barriers.

Barriers to Mainstreaming Transformational Approaches and Ensuring Their Durability

Institutional and Political Barriers. Research identifies several categories of barriers that hinder the implementation of transformational change (Cobourn & Ignaciuk, 2025; Giles et al., 2021; World Bank, 2020).

Institutional barriers include poor interministerial coordination, top-down policy structures, fragmented implementation strategies, and regulatory environments that favor

maintaining the status quo. The GEF IEO (2025) found that nearly half of the projects reviewed faced legal and policy barriers and two-fifths faced barriers related to conflicting stakeholder interests. The IFAD evaluation also highlights a lack of organizational learning mechanisms, and weak systematic approaches to scaling successful interventions (IFAD IOE, 2022).

Political barriers include limited political will for systemic change, short-term electoral cycles that conflict with long-term transformation needs, and resistance from vested interests that benefit from existing systems and lobby vigorously to prevent or roll back progress. Analysis highlights how rapid restructuring faces political resistance even though it is more cost-effective than gradual approaches (World Bank, 2020).

Behavioral and Cognitive Barriers. Individual-level barriers include psychological distance from climate risks, resistance to change, strong social conformity pressures, and resource constraints that limit the adoption of transformational practices. Risk aversion emerges as a significant barrier at all levels, including individual, collective, and institutional levels (Cobourn & Ignaciuk, 2025; Giles et al., 2021)

Cognitive barriers involve inadequate understanding of transformational concepts, limited technical capacity for implementation, and insufficient knowledge of successful approaches. Farmers, for example, may hold strong beliefs about the viability of conventional monoculture systems and doubt the productivity of diversified, agroecological alternatives. Similarly, policymakers may lack awareness of successful transformational models and hence resist policy shifts. These call for better knowledge dissemination and peer-to-peer learning (IFAD IOE, 2022).

Systemic Barriers. Agricultural transformation encounters specific systemic challenges, including market pressures (such as price constraints, labor costs, and input price volatility), policy restrictions (uncertain government strategies, landowner bias, and tenancy limitations), and social dynamics (including succession uncertainty, limited farm income, and social conformity pressures). These connect to broader social justice issues, including unequal access to land, credit, technology, and markets. These structural inequalities prevent smallholder farmers from engaging effectively in transformational agricultural transitions despite individual motivation and technical knowledge (Juschten et al., 2025; Whitton & Carmichael, 2025).

Evidence Needed for Supporting Durable Transformation

These barriers highlight the needs and limitations that evaluative evidence must address to promote transformational change effectively. Transformation requires commitment from decision-makers to make the necessary changes and from claimholders to carry them out.

To overcome these barriers and advance transformational climate responses, evaluators should generate targeted evidence:

- **For institutional/political barriers:** Evidence of successful policy and institutional reforms; examples of interministerial coordination mechanisms that work; win-win solutions that strengthen economic, ecosystem, and climate resilience of the most marginalized.
- **For behavioral and cognitive barriers:** Case studies of farmer-led and community-led transformational transitions; peer-learning evidence from farmer field schools and community platforms; visual/narrative evidence of successful alternatives.
- **For systemic barriers in the agricultural/rural context:** Evidence of scalable solutions across diverse contexts; analysis of which structural inequalities (land, credit, market access) are most critical to address; comparative rubric assessments showing that transformational practices can work in varied settings.

Rubric-based assessments and graphical representations of nexus effects are particularly powerful in communicating these evidence types to decision-makers, as they visually demonstrate win-win possibilities and challenge zero-sum thinking.

The presence of these barriers signals that simply providing evidence of successful alternatives might not be enough to convince. For instance, farmers deeply immersed in a particular way of doing agriculture need a reset of their belief system. A comprehensive and institutional approach will be necessary—enhancing agricultural extension work and farmer field schools (pioneered by FAO) for peer-to-peer learning to promote win-win solutions among farmers, along with policies to offset potential initial financial losses while adopting new methods. It is also worth bearing in mind that the barriers are context-dependent, and evaluations within each context should provide relevant evidence for those advocating a transformational response.

Conclusions

Evaluation methods for development interventions remain locked in a mindset of incremental improvements to the status quo rather than transformational changes. They continue to privilege project-level outputs and predefined indicators over the deep, systemic changes needed to address the polycrisis. By treating environmental effects as peripheral, these evaluations routinely misclassify modest technical adjustments as success and rarely ask whether ecosystem and climate responses are big enough, fast enough, or targeted to address the looming climate catastrophe and ballooning social inequity.

This article is premised on the recognition that ultimately the *raison d'être* for evaluations is to support sustainable and just development. As such, those who commission, conduct, and use evaluations—and make development decisions—must support the transformative imperative to address the polycrisis. To help them do so, evaluation must clearly distinguish transformational interventions from those with merely positive improvements to the status quo; it must focus on the system and its transformation rather than individual projects; and it must fashion itself to provide the necessary evidence base to facilitate the scaling of transformational interventions and help address the barriers to their mainstreaming.

To achieve this reset, we propose and illustrate a pathway to identify a conceptual framework and methodology to identify and assess the transformational potential of interventions. First, evaluators must develop a shared understanding of what constitutes transformational interventions, characterizing interventions across key dimensions of transformation (such as paradigm shift, systemic influence, scaling, durability, equity, and win-win outcomes). Second, map the current evaluation regime to identify strengths and gaps. Third, address the gaps in conceptual frameworks for assessing durable transformational interventions—such as nexus analysis of human–ecosystem–climate–social equity to shift away from anthropocentric approaches. Fourth, develop practical and simple methods to operationalize this conceptual framework—e.g., the rubric methodology to assess the nexus effects. Finally, we call on development organizations and governments to scale isolated evaluation innovations, mainstream assessment of transformational efforts, and marshal evidence to contribute to transformational climate and environmental responses.

This article recognizes that evaluative evidence is one factor among many in decision-making. Behavioral change, policy coherence, and financing must accompany evaluative insights to mainstream transformational responses. In this framing, evaluation is transformed from a project-level accountability tool into a strategic actor in the politics of climate response. This article exposes the costs of anthropocentric approaches and equips decision-makers with credible arguments for transformational development pathways that promote climate mitigation and adaptation and environmental and social sustainability. Such transformation is beyond the remit of individual evaluators and requires the active commitment and contribution of all relevant actors, including commissioning agencies, relevant development and environmental organizations, and governments.

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